

# W5YI

## America's Oldest Ham Radio Newsletter REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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## ARRL's Version of Amateur Service Restructuring Filed with FCC!

On December 1<sup>st</sup>, the ARRL filed a 54-page document commenting on the FCC's proposed redesign and simplification of the Amateur Service rules, WT Docket 98-143. "...the Commission is concerned that the present six classes of license are unnecessary in order to encourage progressive upgrading of amateur license classes through continued self-training and experience with Amateur Radio communications" ARRL said. The League agrees with that assessment."

ARRL also criticized the FCC on a few points. For example, it said the FCC's NPRM failed to contain "...a comprehensive license restructuring proposal or even an overall review of license restructuring" and generally "...missed the mark relative to its intentions."

The FCC's *Notice of Proposed Rulemaking* did, however, respond the League's petition to tighten up the procedures that permit severely handicapped persons to obtain waivers of the high speed Morse code examinations. One possible approach to that problem would be for the FCC to revise the telegraphy examination requirements to a point where the higher code speed exemptions for handicapped persons would no longer be necessary. Many amateurs believe that there is an overemphasis on Morse proficiency in the licensing process.

The League said that there has not been a complete restructuring of the Amateur Service licensing regulations since 1976. And that "...the Am-

ateur Service regulations governing licensing have been periodically added to and subtracted from over the years since 1976 to accommodate incremental regulatory changes, such as the implementation of the Volunteer Examiner program, and the deletion of the telegraphy testing requirement for the current Technician Class license."

"The League, having studied the restructuring issue for the past two and one-half years, feels strongly that the Biennial Review process offers a timely and needed opportunity for simplification of what is now an overly complex licensing structure for the Amateur Service." The ARRL's "comprehensive plan for Amateur licensing for the future" was adopted in July of this year and slightly modified by the League's Board on October 24, 1998.

The ARRL comments made a pitch that could be interpreted to mean that only their opinions should be considered. Noting that the Commission asked for comments from the examining community, the ARRL said its VEC operation is by far the largest "...and administers twice as many examinations (approximately two-thirds of all examinations administered) as all of the other 13 VECs combined.

The ARRL-VEC also participates actively in the question pool committee established among the VECs. Therefore, these comments reflect not only the extensive background and experience of the only national association representative of the interests of all amateur radio operators, with a member-

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ship of more than 160,000, and a representative Board of Directors. It represents as well in this proceeding the ascertained interests of amateur licensees and the input of thousands of radio amateurs."

## The ARRL Restructuring Proposal

"The current licensing structure has been perceived by many radio amateurs, League members and non-members alike, as overly complex, cumbersome and somewhat outdated," the ARRL said in its comments to the FCC.

The League believes that any review of Morse code examination issues and the proposed deletion of the Novice Class license should be combined with a complete review of the Amateur Service license classes, license privileges, and High-Frequency (HF) subbands since these issues are all interrelated.

The ARRL called their proposal "...a reasonable means of encouraging entry-level amateurs to continue on a path of technical and operational self-training without an overemphasis on manual telegraphy skills; it is an appropriate reduction in the number of license classes to simplify the license structure and reduce unnecessary regulation while retaining the stepped process of incentives for self-training; it provides a means of increasing the exposure of licensees to all of the varied aspects of amateur radio worldwide communications; it is a means of "refarming" the amateur HF allocations by license class to provide more efficient use of those bands and to increase the incentives to upgrade one's license class at all licensing levels; and it is a means of ensuring for the benefit of the public a larger pool of persons skilled in providing public safety, public service, disaster and emergency communications and fostering international goodwill."

ARRL agreed with the FCC's position that six different classes of license are no longer needed. "A simplified structure with four classes is preferable. The plan suggests four written examination elements to establish amateurs' operational and technical qualifications instead of the present five, and two telegraphy examination elements instead of the present three.

The League said its objectives for license restructuring included:

- (A) No privileges of existing licensees should be reduced.
- (B) Testing should be related to privileges, and should place greater emphasis on operating practices and on current technologies.
- (C) The number of license classes should be reduced.
- (D) The entry level license should be attractive to potential amateurs, and especially to younger people.
- (E) Experimentation should be supported and encouraged.
- (F) Rules that result in the underutilization of parts of

some amateur bands should be removed.

The League had originally wanted to name the four remaining license classes: A, B, C and D to differentiate them from the current licensing structure. "However, it became apparent that there are emotional attachments among amateur licensees to the license classes earned over time. The League has no intention to detract from the achievements of existing licensees. Because these achievements are, quite reasonably, identified by reference to current license class titles, the League now urges retention of the use of the Technician, General, Advanced and Extra Class designators in any revised rules."

The only difference from the current designations would be a name change from the "Amateur Extra Class" to simply "Extra Class" to make the title consistent with that of the other license classes.

## The "new" Technician Class

"Under the [League] plan, the entry level to Amateur Radio would be exclusively the Technician Class." The ARRL agreed with the FCC suggestion to eliminate the Novice and Tech Plus classes to bring the number of license classes to four. Unlike the FCC NPRM, however, the League's plan calls for Novice and Tech Plus licensees to be automatically upgraded to the General class without further testing.

In order to eliminate the necessity of reissuing new license documents, the ARRL proposes that new Sec. §97.9(a) should read "A Novice Class or Technician Plus Class license issued by the Commission, until such license expires, is considered a General Class license."

ARRL said it recognized that this constitutes an "instant upgrade" of existing Novice and Technician Plus licensees without additional testing. In support of its position, however, the League argued that these licensees both had passed 5 WPM Morse code and written examinations dealing with HF operation. Furthermore, Novice and Technician Plus licensees have been authorized to use Single Sideband (SSB) voice and digital emissions in portions of the 10-meter band for more than a decade.

"It is also administratively efficient to assimilate existing Novice and Technician-Plus licensees into the General class, rather than grandfathering them," ARRL said, "...so as to permit the 'refarming' of the presently-underutilized Novice Class HF subbands. Such refarming is critical to any comprehensive license restructuring proposal."

The Technician Class "...would convey the privileges of the present Technician license, but in addition, it would entitle licensees, without passing a Morse code examination, to operate using the Morse code on the General Class high-frequency (HF) CW subbands, at 200 watts power output. The new rules (§97.313(c)) would

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specify: "No station may transmit with a transmitter power exceeding 200 W PEP on the 3.525-3.700, 7.025-7.125, 10.100-10.150, 14.025-14.150, 18.068-18.110, 21.025-21.150, 24.890-24.930, or 28.000-28.300 MHz band when the control operator is a Technician operator.

The written examination (the current Element 3A would become a new 35 question Element 2) would be at the same level of difficulty as that of the present Technician examination, but would be reworked in order to more specifically address the privileges of the license.

## Operating CW without Morse testing

The objective behind the League's rather innovative plan to permit Technician Class licensees to operate CW on the General Class HF (non-phone) bands without prior examination is to expose Tech operators to HF operation and to motivate them to upgrade to the General Class where the new code speed would be 5 WPM.

"...allowing 'codeless' Technician licensees to operate on HF bands using only telegraphy is both self-limiting and self-proving," ARRL said. "A Technician class licensee cannot make use of those privileges without knowing how; and the actual use thereof is a demonstration of the ability to conduct two-way communications with texts in telegraphy. Since actual two-way amateur communications on the air, an interactive experience, is both the most interesting means of acquiring proficiency in telegraphy, and at the same time the quickest means of improving such proficiency, the League believes that this additional privilege will encourage the elimination of what presently appears to be a transitional gap between the Technician class licensees and other amateur licensees, and will provide a reasonable substitute for the Novice Class license."

The ARRL did not address the probability that most Technician licensees would use computer programs to de-code HF telegraphy and therefore would not really "know" code. The ARRL proposed to change Section §97.307(f)(9) to read: "A station having a control operator holding a Technician Class operator license may transmit only a CW emission using the international Morse Code." No where in the ARRL proposed new rules (listed in the appendix to their comments) is it specified that only manual (non-machine sent/received) CW should be used. And even if "receiving by human ear" was mandated, how would that be determined or enforced?

This creative position on HF CW operation by the "unproven" Technician Class seemingly is in violation of the international treaty which requires demonstrated proof of the ability to receive Morse code signals 'by ear' (unless, of course, you define your PC as being 'your ears.') It will be very interesting to see how the FCC views this wrinkle!

While calling for a reduction in CW testing require-

ments, the League also took pains to defend the mode in terms of its popularity. "There is a substantial amount of regular use of telegraphy on-air, and no indication that there is a 'de-emphasis' on amateur use on-air of telegraphy" the ARRL said. The League also pointed out that Morse code can cross language barriers, thus enhancing international goodwill, and can make ham radio more available to severely disabled people.

"While it should not be overemphasized in the licensing process, it should be continued as a requirement for Amateur Radio licensing above the entry level," the League concluded. "But CW testing requirements should "encourage, not discourage," license upgrading and self-training."

The League also urged that multiple-choice CW exams be ended, and only answering 7 out of 10 "fill in the blank" questions or correctly transcribing one minute solid copy should be allowed.

## The General Class license

The ARRL envisions that the entry level to HF voice operating privileges would be the General Class license. It would retain all current operating privileges, but with the telephony subbands expanded by 50 kHz in the 3.5 and 21 MHz bands and by 25 kHz at 7 MHz.

To upgrade from Technician to General, an amateur would pass a 35 question written examination (to be called Element 3) on the operational and technical qualifications required for HF operation and a 5 WPM code examination (Element 1A) which would replace the current 13 WPM requirement.

The expansion of the General (and Advanced, and Extra class) phone subbands would result from "refarming" spectrum from the Novice CW bands that are no longer required.

## The Advanced Class

The FCC's NPRM requested comments on Morse code proficiency issues but made no recommendation. The ARRL wants to reduce the number of Morse code examinations from three (5, 13 and 20 WPM) to two — 5 and 12 WPM — and to make the written examinations "...more relevant and with greater emphasis on current operating practices and newer technologies."

The League proposed that General class applicants pass a 5 WPM code test, while Advanced and Extra applicants pass 12 WPM (Element 1B) which they justified as being "...'reasonable' proficiency for anyone seeking full amateur privileges." The ARRL added that abuses of the CW disability exemption process actually were an enforcement, not a testing, issue.

"Where reductions in telegraphy requirements are proposed," the League said, "there is proposed a corresponding increase in substantive written examination

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standards." This means the General and Extra Class written examinations will be made more difficult to pass.

This was accomplished by increasing the General Class written exam by five questions; the Extra Class by ten. Interestingly, the ARRL wants the Technician written exam reduced from 65 questions to 35 ...and the Advanced Class written exam from 50 to 40. The net result is about 15% less total examination questions.

The League believes the VEC Question Pool Committee should continue to determine the questions and that additional "Questions should be added on the subject of digital communications techniques and technologies"

The League also recommended that the number of questions on each topic "...be adjusted to focus more toward amateur station operation and operating procedures at the Technician and General class levels," but more toward technical questions for Advanced and Amateur Extra class exams. The League recommended that the number of written exam questions "increase incrementally" for all license classes above Technician.

**Table No 1 — Examination Questions on each Topic**

<b>Examination Topics:</b>	<b>Written Element:</b>			
	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
(1) FCC Rules	7	5	5	8
(2) Station operating procedures	5	9	2	5
(3) Radio wave propagation	3	3	2	3
(4) Amateur radio practices	5	4	4	5
(5) Electrical principles	3	2	5	6
(6) Station circuit components	1	1	6	5
(7) Equipment practical circuits	1	1	5	6
(8) Amateur signals and emissions	2	2	5	6
(9) Station antennas and feed lines	3	3	6	6
(10) RF safety practices	5	5	0	0
Total Questions in Examination:	<b>35</b>	<b>35</b>	<b>40</b>	<b>50</b>

The restructured Advanced Class ticket would convey the privileges of the present Advanced Class license, but with voice spectrum expanded by 50 kHz in the 3.5 MHz and 21 MHz bands and by 25 kHz in the 7 MHz band.

To upgrade from General to the Advanced Class, an amateur would pass a 40 question written examination (to be called Element 4) which would be similar in difficulty to the present (50 question) Element 4A. Any current General Class licensee, having already taken and passed the 13 word-per-minute telegraphy examination, will of course not have to retake a telegraphy examination to upgrade.

## The Extra Class

The final step would be the full-privilege Extra Class, where voice sub-bands would be expanded by 50 kHz in the 3.5 MHz and 21 MHz bands, and by 25 kHz in the 7

MHz band. To upgrade from Advanced Class to Extra Class, an amateur would be required to pass the most difficult (the League used the word "substantive", but it means the same) written examination. The new Element 5 would consist of 50 multiple choice questions.

"Consistent with the practice in many other countries, no additional telegraphy examination would be required beyond 12 words per minute."

## Other Nprm matters

The League's comments also supported expanding Volunteer Examiner privileges to permit Advanced class licensees to administer General class exam elements.

The ARRL's plan called for all written and telegraphy examinations being prepared or administered by an Extra Class VE. Advanced Class VEs may prepare and administer Elements 1B (12 WPM code) and the new Element 3 (General Class written examination.) And either Advanced or General Class VEs may prepare or administer Elements 1A (5 WPM code) or Element 2 (the new Technician Class written examination.)

The ARRL also said the FCC's proposal to eliminate remaining RACES licenses would have "little practical effect on amateur emergency communications." But, the League suggested that if private-sector volunteer entities could be enlisted to administer the club and military recreation station call signs, the same approach might suffice to continue issuing and renewing RACES licenses. The ARRL also nagged the FCC to deal with several important RACES rules changes it has proposed (RM-9115) and which the Commission failed to deal with in its Nprm.

The League also took time to praise the "new dawn" in amateur enforcement undertaken within the Compliance and Information Bureau by Riley Hollingsworth, K4ZDH. The ARRL suggested that it would be "reasonable to withhold any further action on amateur enforcement" for now and let the CIB continue its work. The ARRL also encouraged the FCC to work with the League's Amateur Auxiliary volunteers in its enforcement efforts.

In its comments, the ARRL stressed the value of increasing participation in the hobby and making it available to more people. "By increased participation, Amateur Radio can provide even more service to the United States than it does currently, with a simpler licensing structure," the League asserted.

A complete copy of the ARRL's comments in WT Docket 98-143 is available on ARRLWeb at <http://www.arrl.org/news/restructuring/>. Reply comments on the FCC's rulemaking proposals are due January 15, 1999. The FCC is not expected to take action on restructuring at least until sometime next Spring.

*(Digested from ARRL Comments on WT 98-143, filed 12/1/98)*

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## AMATEUR RADIO STATION CALL SIGNS

...sequentially issued as of the first of December 1998:

Radio District	Group A Extra	Group B Advanced	Group C Tech/Gen.	Group D Novice
0 (*)	AB0IC	KI0OV	(***)	KC0ENU
1 (*)	AA1UE	KE1KN	(***)	KB1DLS
2 (*)	AB2FV	KG2PK	(***)	KC2EKI
3 (*)	AA3RY	KF3CE	(***)	KB3DFJ
4 (*)	AF4MS	KU4WR	(***)	KG4BBJ
5 (*)	AC5RY	KM5TR	(***)	KD5FTD
6 (*)	AD6HK	KQ6YR	(***)	KF6TYM
7 (*)	AB7ZV	KK7QX	(***)	KD7DKX
8 (*)	AB8DL	KI8HF	(***)	KC8LHN
9 (*)	AA9WR	KG9PA	(***)	KB9TTA
N. Mariana	NH0G	AH0BB	KH0HJ	WH0ABJ
Guam	(**)	AH2DI	KH2TX	WH2ANX
Hawaii	NH7R	AH6PO	KH7QK	WH6DFB
Am.Samoa	AH8R	AH8AH	KH8DM	WH8ABF
Alaska	AL0N	AL7RI	KL0QU	WL7CUY
Virgin Isl.	(**)	KP2CP	NP2KG	WP2AIJ
Puerto Rico	NP3Z	KP3BM	NP3ZZ	WP4NOE

\* = All 1-by-2 & 2-by-1 call signs have been assigned.

\*\* = When all 1-by-2 and 2-by-1 (Group "A") call signs have been assigned, AA-AK-by-2) are next assigned.

\*\*\*= Group "C" (N-by-3) calls have now run out in all radio districts. Group "D" (2-by-3) now being assigned.)

**Note:** New prefix numerals now being assigned in Puerto Rico (KP3/NP3), Hawaii (AH7/KH7) and Alaska (AL0/KL0)

[Source: FCC Amateur Service Database, Washington, DC]

## NEW AND UPGRADING AMATEUR STATISTICS

For the Month of November 1996, 1997 & 1998

License Class	New Amateurs			Upgrading Amateurs		
	1996	1997	1998	1996	1997	1998
Novice	78	66	57	0	0	1
Technician	2350	1145	1208	2	0	11
Tech Plus	244	122	179	403	220	281
General	37	15	14	392	252	209
Advanced	6	1	4	329	180	189
Extra Class	4	1	6	233	113	136
Total:	2719	1350	1468	1357	765	827
Decrease:	+10.2% (50.3%)	+8.7%	+15.2% (43.6%)	+8.1%		

**■ The national amateur radio society of Switzerland, the USKA (Union Schweizerischer Kurzwellen-Amateur) published a statement in the Nov. 1998 issue of their journal, "Old Man," which maintains that Morse code testing in the Amateur Service is no longer useful. This angered neighboring German amateurs.**

The magazine article follows a vote at the annual meeting of the USKA Regional Presidents where all voted to abolish Morse code examinations. An argument was that CW is no longer used in commercial communications. According to the article, the USKA Board of Directors accepted their conclusion and said that they would follow

through and take the "appropriate steps".

The German DARC (the Deutscher Amateur Radio Club is their national society) was apparently distressed at this new Swiss position which was made without conferring with them. Switzerland has now backed off. The new official Swiss word is that the USKA Board has not yet made any decisions on the CW testing issue.

According to an e-mail from Walter HB9AGA (USKA liaison officer to the IARU) "We just had informal (consultative) voting during the meeting with the regional presidents. DARC misunderstood our information in the monthly periodical 'Old Man.' We are not going our own way in this matter. We shall consult with other national societies as well." But the CW decision appears made.

**■ CQ Communications, publisher of CQ Magazine and CQ-VHF has suggested an alternate plan** in their WT 98-143 restructuring comments. CQ proposes a reduction in the number of license classes from six to three, equivalent to the current Technician, General and Extra Class licenses, but with either a single 5 WPM code exam for both General and Extra, or 5 wpm for General and 10 WPM for Extra. Current Novice and Tech-Plus licensees would be "grandfathered" to General Class, and current Advanced Class hams would be grandfathered to Extra, so no currently licensed amateur would lose any operating privileges.

The second part of the CQ plan calls for the addition of "experience requirements" as a condition of upgrading. Many amateurs have complained that the current exam structure allows hams to upgrade without actually learning anything. "Licenses would be renewable forever without any experience requirements," explained CQ President and Publisher Dick Ross, K2MGA. "But in order to qualify for an upgrade exam and greater operating privileges, you would have to show you know more than how to memorize answers to the multiple-choice questions listed in every license manual. An expanded corps of Volunteer Examiners could take care of any certification requirements, so there would be no added regulatory burden on the FCC."

Part three of CQ's proposal calls for creating a "Basic Amateur Permit," which would authorize operation of an amateur station in a school or health care facility, under the general supervision of a licensed amateur. The station would be licensed as a club station under existing rules, with the licensed ham as station trustee, who would be responsible for the station's proper technical operation, but would not have to be physically present whenever it was on the air. The BAP holder, who would have to pass an exam on rules and operating procedures but would not be issued a callsign, would be responsible for the content of transmissions.

Finally, CQ called on the FCC to extend to all former amateurs the ability to reactivate an expired license without having to retake any exams.

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## CUTTING EDGE TECHNOLOGY

■ A new laser-based heart treatment technique has been approved by the U.S. Food and Drug Administration. The surgical procedure uses a laser to drill tiny holes into the heart muscle, thus creating "new" blood vessels for the transfer of blood from one section of the heart to another.

### ■ A new optical microphone has been developed and is being explored for possible field use by Sennheiser.

About the size of a fingertip, the mic operates by using acoustic waves to modulate an interior reflective surface. That surface changes the pattern of light shining upon it from an LED, and sends that changing signal to a photodiode. It can be said that this is a wireless mic, although one must connect its fiber-optic cables to receive output.

■ Semiconductors must be kept scrupulously clean, which is why clean rooms are used. But even the act of writing on an ordinary sheet of paper creates particulates in the air, which can damage or destroy the delicate electronics. That's why clean-room-compatible paper was developed. It's coated with a polymer that keeps particles from getting into the air.

### ■ New technology in the news!

John Glenn's return to space was the first Space Shuttle launch to be covered live by a High-Definition TV news crew. The HDTV feed was relayed through satellites for nationwide coverage. Most viewers saw the HDTV launch in dedicated viewing areas in Houston, Chicago and Washington, DC. Even with the Christmas rush, fewer than 10,000 HDTV receivers are expected to be sold in the U.S. during 1998.

And a DVD that contains President Clinton's grand jury testimony is now available. *Media Galleries*, a California-based DVD publisher, says this is the first DVD of a historical event.

■ CenturionSoft recently released a new software-encryption program that uses a novel method of file security. After encrypting a sensitive file, Steganos then stores it inside another, ordinary file. This means you can hide data inside a word-processor document or a digital image.

■ A new high-power TV satellite is

in geosynchronous orbit for Europe. Called Hot Bird 3, it weighs 6,000 pounds, includes a steerable antenna, and carries enough transponders to relay 800 digital TV signals.

■ In the past 30 years, perhaps up to 3,000 people have suffered eye damage from industrial lasers used in factories, entertainment systems and medicine. Most laser accidents are caused by lack of proper safety procedures, ignorance or carelessness.

■ Several protective features were designed into DVD players to prevent people from copying movies from them onto home videotape. That didn't stop die-hard techies from sharing information on the Internet to bypass those features. Several websites have sprung up around the world, dedicated to show how these copy-protection circuits can be defeated or bypassed by the wires-and-pliers crowd. It's even possible to modify a DVD machine to play PAL discs on an NTSC system.

## COMMUNICATIONS IN THE NEWS

■ Free Radio Berkeley is now Tree Radio Berkeley! The pirate station which was ordered closed down last June 16<sup>th</sup> by U.S. District Judge Claudia Wilken is now operating from a California redwood at a height of 50 feet!

Powered by car batteries, their unlicensed 40-watt microstation operates on the FM broadcast dial at 104.1 24 hours a day from a wooden platform covered by a blue tarp canopy. The feds know where the station is, but at press time have not dared to climb the five story height to close it down. Warnings by the FCC of arrests and equipment seizure have been ignored by the station operators.

Apparently the pirate station has the backing of local government. According to the *San Francisco Chronicle*, the Berkeley City Council voted unanimously to express "moral support" for the station and "disappointment" with the judge's action.

The tall redwood is located in a public park, but so far, the Berkeley police are not enforcing its curfew. The station is being staffed by two operators who call themselves "Birdman" and "Sparrow."

Steve Dunifer of Free Radio Berkeley fame said that he is not involved with the station. But he did hold a press conference at the site where he estimated that there are about 1,000 small, illegal radio

stations operating nationwide.. The FCC said the number was closer to 100.

■ Ground controllers lost their radio link with the Voyager 2 spacecraft for two days in mid-November. The unmanned probe is one of the most distant man-made objects from Earth, now more than five billion miles away. After sending back excellent photos and data from the solar system's four largest planets, Voyager 2 still transmits data from five experiments. The on-board plutonium-based power source is slowly decaying, having been in space for over 20 years, and Jet Propulsion Laboratory periodically shuts down portions of the spacecraft in an effort to keep it operating until at least the year 2020. JPL says the telemetry loss could have been caused by a temporary failure of the S-band exciter, which generates the transmitter's carrier wave. Presently, it takes eight hours for a radio signal to reach Voyager 2. It's still moving away from us at 35,000 miles an hour.

■ "Live" TV may not be "live" at all. Both audio and video signals run through a myriad of effects processors at the network and at the affiliate station. There's travel time to and from satellites, too. The final signal going to the transmitter must mix the sound and picture together and match the delay times caused by frame synchronizers, logo inserters, equalizers and mixers. The total delay may not be much more than a few thousandths of a second.

■ After years of satellite launches and testing, Iridium is now on line. One person can have just one phone number, for use around the world. Voice and paging can be assigned to just one bill.

■ Few people remember that the popular TV series "Candid Camera" grew out of a 1940's radio program with a similar format, "Candid Microphone." In his autobiography, creator Allen Funt relates that in those days people were fascinated with the concept of recording equipment so small that you could actually hide it in something. Funt and his crew quickly became adept at hiding microphones in unexpected places. However, Funt writes, "Early on I found that we could use the size of the microphone to our advantage. When it was very big, it was less recognizable as a microphone. Once we were doing a piece in a pawn shop, and we simply put the mike on the counter in plain view and hung a 'For Sale' sign on it." No one noticed it.

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■ PBS has started airing television programs in the HDTV format in major American TV markets. HBO will do the same very shortly. Broadcasters hope this will influence Christmas shoppers to buy HDTV sets.

■ Television is considered essential to survival. In most states, if a person goes bankrupt, his TV set cannot be seized as an asset. Even so, 20% of the time that a TV is on, it plays to an empty room.

## COMPUTERS & SOFTWARE

■ We reported previously about LEGO-CAD, which allows LEGO users to design and construct objects using the little colored blocks on their computers. Now there is also a microcontroller available, called RCX, which allows children (young and old) to link motors, switches and sensors to actual LEGO models and run robotics programs. The RCX can be linked to a PC.

■ According to Koji Kobayashi, in his book "Computers and Communications", the first electronic computer built in Japan was a vacuum-tube unit called FUJIC, named after the company that built it, Fuji Photo Film Co. FUJIC was completed in 1956 and used for lens design. It is now on display in a museum in Tokyo. NEC built the NEAC-2201 in 1957, thought to be the first transistorized computer in the world marketed for the general public.

■ Tired of the dull white color of your computer equipment? Electrograph, a distributor of video displays, can custom paint any size Mitsubishi monitor from 15" to 37" with any color of the rainbow.

■ A computer glitch wiped out 40,000 votes in Dallas County (Texas) during the November 3rd elections. The electronic balloting systems made by Election Systems & Software of Omaha, Nebraska, somehow ignored 98 Texas precincts, thus greatly affecting totals. Although the glitch didn't change the outcome of any races (just margins), Dallas County commissioners were hopping mad because the new equipment cost well over \$3 million and didn't work. Embarrassed company officials apologized profusely and agreed to eat the \$17,000 fee for technical support.

■ Air-traffic controllers aren't safe

from computer glitches, either. Airports in Chicago and Los Angeles have suffered temporary breakdowns during November. Controllers at Dallas-Fort Worth International Airport loaded a software upgrade into their system in September, but it contained so many bugs that they were forced to "downgrade" back to their original software after only a month.

■ Handheld calculators designed for electricians are available. They work directly with volts, amps, watts, power factor, horsepower and efficiency. You can instantly determine wire, conduit, fuse and breaker sizes.

## INTERNET NEWS

■ Another Internet rumor was squelched a couple of weeks ago when astronomers declared that a suspicious signal heard from space by what was once called the Search for Extra-Terrestrial Intelligence (SETI) was not from an alien civilization, but in fact an Earth-launched reconnaissance satellite. Most radio astronomers know where the satellites are and when to expect them, and what frequencies they use.

■ Microsoft Corp. says that its free electronic mail service, MSN Hotmail, has surpassed 30 million global active accounts making it the largest free e-mail service in the world! Hotmail has added 20 million members since the beginning of 1998, more than tripling in size in less than a year. Microsoft acquired Hotmail in December 1997. Advertising supported Hotmail allows users to send and receive messages without cost as long as they have a connection to the Web and browser software.

## WASHINGTON WHISPERS

■ The FCC has ruled that apartment dwellers can not be prevented from installing and using outside television antennas. The government adopted rules on November 20<sup>th</sup> which permit tenants in rental properties such as apartments and single family homes to install TV antennas, small dishes and wireless cable antennas in areas that they control such as balconies and patios.

Eight million people now receive direct broadcast satellite television signals on small pizza-sized dishes and some landlords frowned on outside antennas, especially if

the unit was already equipped with cable television. The FCC is trying to make satellite TV companies stronger competitors, especially since cable TV rates will be deregulated in March.

Consumer groups, satellite TV companies, broadcasters and consumer electronics makers asked the FCC to give renters the right to install TV antennas. On the other hand, associations representing apartment owners, home builders and real estate managers argued that such rules permitted unsightly antennas and interfered with property owners' rights and lease terms. Lawsuits to challenge the decision appear likely. The Commission already had rules in place that gave homeowners, condominiums, co-ops and mobile homes access to the competitive video market.

The FCC's action responds to the 1996 telecom law that gave the Commission authority to end restrictions which prevent viewers from receiving various video technologies. The rules which take effect around the first of the year will supersede any existing leasing agreements that restrict tenants from installing dishes or other TV antennas.

Unfortunately, the new rules only apply to television antennas and not ham radio. Amateur radio operators have long fought for their right to install outside transmitting antennas and communications towers in residential areas, many of which have zoning and deed restrictions.

■ The White House has unveiled a plan to expand the Internet in third world countries. The plan includes:

- 1) financial assistance for Internet projects in developing nations,
- 2) more research on information technology's economic impact,
- 3) promotion of Internet use by small businesses with Small Business Administration loans,
- 4) a request to international trade groups to establish a set of consumer-protection standards, and
- 5) a promise to keep the Federal Communications Commission's regulations away from cyberspace.

The most sweeping proposal would link remote areas to the Internet via satellite through private-sector funding and World Bank loans.

Contending that electronic commerce is the engine for global economic growth, Clinton said his administration is taking steps to promote buying and selling on the Internet and will work with the FCC and U.S. trading partners to promote the

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development of faster Internet connections. Clinton said that more than 40 percent of all Americans with home computers will shop for holiday gifts on line this year.

■ **CD-ROMs can hold so much information** that many U.S. government agencies now issue construction plans for bids on them.

■ **The FCC has chosen 77 GHz as the frequency to be used for automotive crash-avoidance systems.** So have the Europeans. The Japanese, however, have picked 66 GHz, although 77 GHz may eventually become an international standard.

■ **Some radio stations won't re-broadcast the new National Weather Radio synthesized voice,** complaining that its audio quality isn't good enough. A playback of an actual human voice would sound much better, as NOAA Weather Radio has done regionally for years. But the National Weather Service doesn't have such an upgrade in its budget until after the turn of the century.

## AMATEUR RADIO

■ **New WTB Bureau chief named**—Dan Phythyon, who headed the FCC's Wireless Telecommunications Bureau left his post on December 1 ending a four-year tenure that saw him occupy the top position for more than 18 months. Phythyon took over from Michelle Farqhar in April 1997 after serving as deputy WTB chief. He released no details about his future plans.

FCC Chairman William E. Kennard named Thomas J. Sugrue to replace Phythyon. Sugrue's background includes a six year stint as Deputy Assistant Secretary of Commerce at the NTIA (National Telecommunications and Information Administration) where he advised the White House on communications policy issues. He also served four years with the FCC's Common Carrier Bureau. Mr. Sugrue holds J.D. and Public Policy degrees from Harvard, and a B.S. in physics from Boston College.

The Wireless Telecommunication Bureau oversees all non-broadcasting and common carrier radio services including CB radio, the General Mobile Radio Service and Amateur Radio.

■ **The following message was sent to all Amateur Space Enthusiasts on**

**November 28<sup>th</sup>** from Frank H. Bauer, KA3HDO — AMSAT-NA, V.P. for Human Spaceflight Programs — 15 years ago today, astronaut Owen Garriott, W5LFL, was launched into space on STS-9. He brought along the first amateur radio station on a crew-tended space vehicle. Thousands heard Owen's downlink and hundreds had a direct QSO with him.

Since that time 15 years ago we, the internationally-based human spaceflight amateur radio community, have done some pretty tremendous things for amateur radio and for education.

I want to take this opportunity to thank and to congratulate the hundreds of volunteers around the world who have taken the dream that was shared by Owen, the ARRL, AMSAT-NA and NASA and turned it into a reality that has benefitted the world-wide community of radio amateurs as well as students in classrooms.

Through your efforts, we have amateur radio stations that have flown on all Space Shuttles and on Mir. We are currently on the threshold of installing a permanent amateur radio station on ISS. (International Space Station.)

On behalf of the SAREX Working Group and as a US Delegate to the Amateur Radio on the International Space Station (ARISS) program, I look forward the continued cooperation of all the international partners that comprise ARISS as we jointly forge a new, exciting future for amateur radio in space. 73, Frank H. Bauer, KA3HDO, AMSAT-NA, V.P. for Human Spaceflight Programs; SAREX Working Group; US Delegate, ARISS

■ **Hams who exchanged messages during the glory days of computer bulletin boards** will be saddened to hear that the Hayes company has filed for bankruptcy. Not many years ago, Hayes manufactured the most popular 300-, 1200-, 2400- and 9600-baud modems. Competition then flooded the market with cheap internal and external models. The Internet now rules and almost all BBS's are gone.

■ **As of October 26<sup>th</sup>, the FCC's Electronic Comment Filing System (ECFS)** is the main source for copies of documents filed in docketed and rulemaking proceedings. The public can view all ECFS documents at <http://www.fcc.gov/e-file/ecfs.html>. Over a thousand comments have been filed electronically in the FCC's Notice of Proposed Rule Making that looks toward restructuring the Amateur Service. The ECFS is designed for use with Net-

scape version 3 or higher or Internet Explorer version 3 or higher. The FCC plans to add an FAQ page to ECFS to make the system more user-friendly.

Several amateurs have reported difficulty in filing electronically, and if you are one of them, the FCC wants to hear from you. Send your complaint to Sheryl Segal at [ECFShelp@fcc.gov](mailto:ECFShelp@fcc.gov). "I monitor this e-mail box myself, and will make sure that every complaint is read and gets a response," Sheryl said. "They can also send e-mail to me directly, but since the ECFS-help box is monitored by several staff, they can be sure of an immediate response even if I am out of the office."

"Although it is very aggravating to have difficulty filing, if they will send me the specific problems they had, then I can have those glitches fixed, or make sure the directions are clear so that they can use the system more easily. Without the details, I can't really be of much help. I would very much appreciate your help in getting your subscribers to complain directly to me. [Signed:] Sheryl Segal" Her e-mail address is: [ssegal@fcc.gov](mailto:ssegal@fcc.gov)

■ **Due to alleged fraudulent examinations, the FCC on November 10<sup>th</sup> set aside the Extra Class upgrades** of Elmer J. Smith, N3UNR, of Effort, Pennsylvania; Philip DiGenova, N3UNS, of Bartonsville, Pennsylvania; Wayne S. Bowden, AA3RT, of Millsboro, Delaware; and Kenneth L. Sharp, AA3RU, of Boyertown, Pennsylvania. The Commission also directed all four individuals to return their Extra Class license documents to their Gettysburg licensing facility. Di Genova and Sharp have already complied.

After receiving very serious complaints from nearby amateurs, the W5YI-VEC turned these Extra Class upgrades over to the FCC for possible enforcement action. An investigation is now looking into testing irregularities at the October 6<sup>th</sup> exam session in Warminster, PA.

Until it is complete, Smith and DiGenova may operate under their previous Technician Class licenses, while Sharp has been returned to the Advanced Class. Bowden apparently went from no license to Extra Class at an exam session held in Spring City, Pennsylvania, on October 4.

■ **On November 18<sup>th</sup>, the FCC notified Richard C. Lalone II, KC5GAX,** of Fort Campbell, Kentucky, that it was invalidating his General Class upgrade because of an apparent fraudulent doctor's *Certification of Disability*. His amateur privileges have been returned to Tech Plus.

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## 400 Days and counting- THE MILLENNIUM BUG

The Y2K (Year 2000) bug results from the programming short cut taken decades ago to save computer memory when years were abbreviated to two digits, rather than four. When 2000 arrives, affected systems that haven't been fixed could mistake the "00" in their internal clocks as 1900, or even some random date.

Software writers knew this would cause problems because two digit numbers would be unable to make sense of 2000. But they expected most of these machines would be obsolete by then. They were wrong, and companies and governments around the world have been frantically spending billions of dollars to upgrade computers to forestall disaster come midnight on December 31, 1999.

Computers can be reprogrammed by rewriting the software code, but many devices have embedded microchips that must be physically replaced. There are billions of software functions and billions of chips to check, with little more than a year to finish the job.

Technicians around the world are now racing the clock to ensure that if problems arise on New Year's Day 2000, they are minimal and can be swiftly cured. But will they? There is reason to believe that they may not.

Here are some brief "eye-opening" quotes that we have gathered during the past 30 days from our "Y2K" Internet search engine. The danger to the world is very, very real!

**From France:** "French finance minister Dominique Strauss-Kahn said that it is more and more likely that all aircraft in the world will be grounded on Jan. 1, 2000, out of fear of possible chaos."

**From Sri Lanka:** "Present predictions are that not all systems could be reprogrammed prior to the critical date and that there is the possibility of many systems malfunctioning and crashing altogether."

**From Africa:** "Only six of Africa's four dozen countries south of the Sahara have national government-backed programs to tackle Y2K -- South Africa, Mauritius, Seychelles, Ivory Coast, Nigeria, and Namibia. Many Africans live near the poverty line, buying cooking fuel, tinned goods, and corn meal on a daily basis. The Y2K glitch could disrupt transportation networks and shut down supplies, contributing to social unrest and crime," said Jaiswanth Ramdin at the government's Y2K center."

**From Asia:** "The Asian financial crisis is a major inhibitor to solving the Year 2000 problem," the GartnerGroup said in an October report. "Many emerging economies with a high dependence on commodities or with serious problems in their banking systems are struggling to find the financial resources to fix their Year 2000 problem."

**From New Jersey:** "William G. Dressel Jr., the League of Municipalities executive director is pushing for the Legislature to pass bills that would give towns fiscal and legal breaks. One suggested law would extend governmental immunity to Y2K

problems. For example, if a traffic light stops working early New Year's Day in 2000 because its chip was not replaced and you crash, you could not sue the town."

**From Washington, DC:** "Most states are behind schedule in renovating their computers for the year 2000, and as a result it is likely that benefit payments will be delayed, or services interrupted, for some people who receive welfare, Medicaid, food stamps or other types of assistance, Federal and state officials say."

**From Europe:** "European governments are failing to protect their citizens against fallout from the millennium computer bomb, and the consequences of their inaction are likely to start at the end of this year in hospitals and welfare systems, a conference was told yesterday. 'European governments and public sector organizations have only spent between 5 and 10 percent of what it needs to fix their systems,' Gartner Group analyst Andy KYTE told a press briefing."

**From Japan:** "The program calls for companies in all industries to modify their computers and then verify that they have removed the millennium bug from their systems by inputting data relating to the year 2000 in a series of tests. Asked in the survey whether they have completed simulated tests using modified computer programs, 19 percent of Japanese banks said they had done so 'for crucial computer systems' among a range of computer systems they use. But none of Japan's electric power companies, gas utilities or civil aviation firms had completed the required tests for the computer systems they are using."

**From Canada:** "Most insurance companies won't offer any new coverage related to Year 2000 computer problems. That means that, if a company suffers a power loss or any other related problem in January, 2000, it may not be covered by its insurance policy. The Insurance Council of Canada says insurers had to take such steps, or the entire insurance business could be wiped out."

**From the US military:** "The US Navy faces major Y2K problems claims a report from the US General Accounting Office (GAO) as part of its continuing criticism of US government efforts to eliminate the millennium bug. 'Failure to address the year 2000 problem in time could severely degrade or disrupt the Navy's day-to-day and, more importantly, mission-critical operations,' said the GAO report. The Navy was taken to task for being behind in its Y2K efforts and that Y2K software failures could potentially disrupt its operations worldwide."

**From the UK:** "The Treasury has admitted that it will hit the economy, but has no idea how badly. Independent economists are less cautious: after the millennium, they warn, the world is likely to find itself in severe recession. The culprit is not devaluing currencies, debt overhangs or ballooning trade deficits. It is errant pieces of computer code: the millennium bug."

British companies are quietly preparing for the worst over the Year 2000, anticipating system failures and preparing to stockpile goods and materials. Almost 85 per cent are supplementing their efforts to adapt their systems for the new millennium with contingency plans on how to simply stay in business, according to a six-monthly study conducted by IT services group Cap Gemini."

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**From the Pentagon:** "The Pentagon office responsible for safety and security of U.S. nuclear stockpiles and emergency response in a nuclear incident acknowledges falsifying readiness reports on the looming Year 2000 computer problem. The Defense Special Weapons Agency claimed that three of five so-called 'mission critical' computer systems, essential to conducting its most primary duties, were fully prepared to face the computer crisis despite never conducting necessary testing, according to a recent Defense Department Inspector General's Report."

**More from the Pentagon:** "The Pentagon ran its first Year 2000 "war game" Friday to test how Defense Department officials reacted to mock computer snafus caused by the millennium bug. The Pentagon has modeled the Year 2000 'table top' exercises after similar war-game exercises in which key players follow a loosely scripted battle and attempt to cope with 'enemy' moves by exercise coordinators. Enemy attacks were not part of the Year 2000 exercise. Rather, participants dealt with pernicious and hidden bugs in seemingly benign systems - bugs that could cripple U.S. forces as badly as a missile attack, said Langston, who calls Year 2000 issues 'my No. 1 priority.' The Pentagon needs to conduct these war games, Langston said, because it depends on outside sources and suppliers. DOD also is concerned about the impact that the collapse of foreign information systems could have on readiness."

**From Russia:** "In the former Soviet states, in particular, some 65 nuclear reactors are not Y2K ready. In the current state of economic crisis, nuclear operators go unpaid for months at a time. And, lacking money and time to replace computers, Russia's only solution will be 'mitigation.' That translates to measures like hiring armed guards, and running diesel backup generators and bringing in legions of computer experts for the dawn of the New Year."

**From Germany:** "Thousands of German companies are flirting with ruin after failing to take any steps to deal with the millennium bug that may disrupt computer systems, an industry association said on Thursday. The federation of German industry (BDI) said that roughly 15 percent of the country's small-and medium-sized companies have not take any precautions to stop their computers from crashing in the year 2000. 'If these companies do not take any action now, they will be risking massive economic difficulties that could even lead to bankruptcy,' the BDI said in a statement."

**World Y2K Ratings:** "IT research company the GartnerGroup has ranked the 12 countries which are best prepared for the crisis. Australia, Belgium, Bermuda, Canada, Denmark, Holland, Ireland, Israel, Switzerland, Sweden, the United Kingdom and the US are all ranked by Gartner Group as 'level one' countries where only 15 per cent of companies are expected to experience a Y2K-related mission critical failure.

On a regional basis, only three Asian countries made it into the GartnerGroup 'level two' band, where 33 per cent of companies are headed for trouble. The big surprise in the GartnerGroup gradings, delivered at a conference in Singapore this month, was Japan. Along with India, Malaysia and North Korea, Japan has been placed in level three. Half of the companies in these countries are expected to suffer Y2K-related system failures. The huge variation in the level of preparation on a country-by-country basis prompted Dutch airline KLM to confirm last month that it is considering declaring some no-fly zones on December 31, 1999."

**US Government:** "The US government has made little progress in fixing billions of dollars worth of IT systems to handle the millennium date change according to a congressional subcommittee. Representative Stephen Horn, chairman of the House Subcommittee on Government Management, Information, and Technology awarded the government a 'D' grade on its Y2K efforts. Government agencies are far from being able to meet a Clinton administration deadline of March 30 1999 for completing Y2K preparations added Horn.

Those with grades of "F" are the departments of Justice, Defense, Energy, Health and Human Services, State, and the U.S. Agency for International Development. That agency got an 'F' for buying a new computer system that is not 2000-ready. 'They receive the dunce-of-the-year award,' Horn said."

**US Corporations:** "As the focus on the millennium-bug problem moves from the data center to the boardroom, a growing number of companies - including Sears and Prudential - are establishing year 2000 war rooms to monitor crisis-management activities. In some cases, the war rooms, furnished with videoconferencing equipment and computer-generated maps, will also help project teams monitor regional power outages and other localized operations affected during the millennium rollover."

**US Banks:** "Officials with the Federal Reserve have admitted that around \$50 billion in cash will be printed specifically for the December 1999 period, so as to ensure that dollar bills won't run out if there is a run on banks and ATMs late next year. The American Bankers Association (ABA) advises, if you don't already do so, keep your monthly bank statements and paper records of your transactions, especially for the months preceding January 2000."

**From FEMA:** "The US Federal Emergency Management Agency needs more readiness assessments from the President's Council on Year 2000 Conversion before it can prepare an emergency response plan to handle possible year 2000 disruptions, a FEMA official said. 'We have to plan for the unknown at all times,' said Lacy Suitor, FEMA's executive associate director for response and recovery. 'We need the assessments.'

FEMA is charged with developing an emergency response plan in case power plants, rail lines, airports, docks and telecommunications infrastructures, for instance, break down because of faulty date code."

**From Hollywood:** "'Y2K: The Movie' is being developed by Warner Brothers and is scheduled for release in autumn 1999, months before the bug is due to strike for real. Set in New York the film stars Chris O'Donnell, famous for his role as Robin in the Batman movies. He plays a computer programmer who comes across dangerous information as midnight December 31, 1999, approaches and the plot centers on the dilemma he faces on making this discovery.

Stu Zicherman, the screenwriter, describes the millennium bug as 'the greatest ticking clock ever. It's one of the few deadlines in the history of the world that you cannot push back.'

Other big Hollywood studios, including MGM, are also planning millennium-bug disaster movies, which, experts say, could trigger panic among filmgoers as the date of no return approaches. One studio has a script involving a Boeing 747 crashing into the Empire State Building as its systems fail."